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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/879,323 | 06/12/2001 | Masaki Ichihara | 14699 | 5105 |

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EXAMINER

PHUNKULH, BOB A

ART UNIT PAPER NUMBER

2661

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,323

Applicant(s)

ICHIHARA ET AL.

Examiner

Bob A. Phunkulh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☒ Claim(s) 8-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/23/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is in response to applicant's 03/23/2005 amendment(s)/response(s) in the application of **ICHIHARA et al.** for "**ORTHOGONAL FREQUENCY DIVISION MULTIPLEX MODEM CIRCUIT**" filed 06/12/2001. The amendments/response to the claims have been entered. No claims have been canceled. No claims have been added. Claims 1-11 are now pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ring (US 6,430,148).

Regarding claim 1, Ring discloses an OFDM circuit which uses a plurality of sub carriers for communication, and transmits and receives a plurality of communication channels, wherein the plurality of sub carriers are divided into groups (a first group of OFDM sub-channels for an uplink channel) and each of the groups are assigned one group per each of the plurality of communication channels (a second group of OFDM sub-channels for a down link channel), respectively (see abstract).

Regarding claim 2, Ring discloses the assignment of sub carrier groups to the respective communication channels is adaptively performed (see col. 2 lines 1-7).

Regarding claim 5, Ring discloses all sub carriers are assigned to a signal channel as required, while communication of other channels is stopped (see col. 2 lines 8-23).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ring in view of Yonge, III et al. (US 6,442,129), hereinafter Yonge.

Regarding claims 3, 6, Ring fails to disclose the modulation system given to each of the sub carrier groups is changed (QPSK or QAM or BPSK) according to QOS needed for a corresponding communication channel.

Yonge, on the other hand, discloses changing the modulation schemes based on the channel condition i.e. to QPSK or QAM or BPSK (see col. 1 lines 6-15; col. 1 lines 34-44; col. 2 lines 47-60; and col. 8 lines 13-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of Yonge in the system taught by

Ring in order to reduce impulse noise which can produce bursts of error on the transmission channel.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ring-Sakoda as applied to claim 3 above, and further in view of Manson et al. (US 5,488,632), hereinafter Manson.

Regarding claim 7, the combination of Ring-Sakoda fails to disclose the peak values of modulation symbols are determined so that transmission power of the respective sub carriers becomes the same irrespective of the modulation systems.

Manson, on the other hand, discloses the peak values of modulation symbols are determined in OFDM system (see col. 9 lines 31-42).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of Manson in the system taught by the combination of Ring-Sakoda such that the peak of each modulated carrier occurs at a frequency corresponding to nulls for all of the other modulated carrier.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ring in view of Sakoda et al. (US 6,195,534), hereinafter Sakoda.

Regarding claim 4, Ring fails to disclose means for randomizing alignment of the respective subcarriers on a frequency axis is included in a transmitting side, and means for de-randomizing a signal where the alignment is randomized is included in a receiving side.

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Sakoda, on the other hand, discloses the sub carriers having the high priority data superimposed and the sub carriers having low priority data superimposed are positioned alternately is transmitted i.e. (randomizing the alignment of the respective sub carriers), and at the receiving side, a predetermined reception processing is performed on the transmission signal to obtain reception symbol stream being the alignment of symbols on the frequency axis (see col. 5 lines 45-60; col. 6 lines 6-20; and col. 6 lines 51-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made includes the teaching of Sakoda in the system taught by Ring in order to provide a transmitter in a cellular radio communication system with ability to transmits both high priority data and low priority data at the same time using a plurality of carriers.

Allowable Subject Matter

Claims 8-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any response to this action should be mailed to:

The following address mail to be delivered by the United States Postal Service (USPS) only:

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or faxed to:

(703) 872-9306, (for formal communications intended for entry)

Or:

The following address mail to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, Hand Delivery, etc.) as follow:

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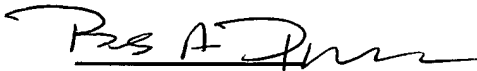
Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Bob A. Phunkulh** whose telephone number is **(571) 272-3083**. The examiner can normally be reached on Monday-Tuesday from 8:00 A.M. to 5:00 P.M. (first week of the bi-week) and Monday-Friday (for second week of the bi-week).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor **Chau Nguyen**, can be reach on **(571) 272-3126**. The fax phone number for this group is **(703) 872-9306**.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bob A. Phunkulh

A handwritten signature in black ink, appearing to read 'Bob A. Phunkulh', with a stylized flourish at the end.

TC 2600

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June 14, 2005